DOCUMENT RESUME

ED 272 564 TM 860 480

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TITLE Assessing American Education: Shrinking Resources, Growing Demands.
SPONS AGENCY National Center for Education Statistics (ED), Washington, DC.
PUB DATE Jun 85
NOTE 26p.; In: Invited Papers: Elementary/Secondary Education Data Redesign Project, October 1985; see TM 860 450.
PUB TYPE Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adolescent Development; Bilingual Education; Child Development; Computers; *Data Collection; Dropout Rate; *Educational Assessment; Elementary Secondary Education; *Equal Education; Longitudinal Studies; Preschool Education; Private Schools; *Research Design; *Research Needs; Teacher Education; Teacher Salaries; Teaching Methods

ABSTRACT

There is a need for educational research even during financial difficulties. Wisdom and efficiency in spending, careful data collection, and collaboration among agencies should be important goals while resources are scarce. Considering the situation, this paper describes critical issues in elementary and secondary education and the manner in which national data collection efforts might address these issues effectively. The critical issues include the equal importance of equity and excellence as goals of American education. Several phenomena related to the goals of equity and excellence are discussed, including bilingual education, private schools, use of computers in schools, drop-outs, and the transition from school to work. A second major issue is the development of students from childhood through adolescence. Developmental issues include longitudinal studies, especially of elementary school children, preprimary school programs, and adolescent development. The quality of instruction, including teacher preparation and classroom processes, and public perceptions of education are discussed as well. A five-page reference list is included. (JAZ)

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ED272564

Assessing American Education:
Shrinking Resources, Growing Demands

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Paper commissioned by the
National Center for Education Statistics
June, 1985

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TM 860 480

Assessing American Education: Shrinking Resources, Growing Demands

National statistics on education are amassed in order to monitor the extent to which individuals are being educated and the quality of education they receive. These statistics are necessary for planning future educational efforts and for assessing the impact of past and current educational policy and practice. Few people appear satisfied with the American educational system. In 1983, the "year of the reports", several studies critical of American education were published (Howe, 1984). These reports (e.g., National Commission on Excellence in Education, 1983) call for greater attention to "excellence" in education. At the same time, many individuals insist that the race/ethnicity, class, and gender biases pervasive in American society must not be reflected in children's school experiences or in their achievement levels (see, for example, Harvey, 1985; S. Klein, 1985). Further, schools are expected to do more than focus exclusively on the teaching of narrowly defined cognitive skills. Because it is an almost universal experience for American children, occupying much of their lives, schooling is expected to facilitate the healthy development of children into competent, well-adjusted adults. In short, many varied demands are being made of the educational system, at a time when public support, particularly at the federal level, is declining.

In a time of shrinking funds for education, one could argue that scarce resources should be channelled into direct services for children. Careful monitoring of education, however, becomes even more critical in times of financial difficulty so that the effects of cutbacks and of continued spending can be documented. Bell (1982) includes conducting and financing educational research, and strengthening national research capabilities, especially at universities, as legitimate functions in a limited federal role in education. Even a conservative position, then, acknowledges the strong need for educational research. Data collection should be carefully planned, to avoid unnecessary expenditures and repetition. Collaboration among agencies and individual researchers will be necessary. Efforts such as the recent Interagency Conference on Child and Family Statistics (Zill, Peterson, & Moore, 1984), aimed at coordinating and improving national statistics on children generally, including those on education, should be continued. Although funding for data collection is a serious issue, the cost of various data collection programs will not be addressed directly in this paper. Wisdom and efficiency in spending are important goals; however, it is a truism that many other areas of governmental spending are far more wasteful and less useful to the society than is the education of America's children.

This paper describes critical issues in elementary and secondary education and the manner in which national data collection efforts might address these issues effectively. These issues include, first, the equal importance of equity and excellence as goals of American education. Several phenomena

related to the goals of equity and excellence are discussed, including bilingual education, private schools, use of computers in schools, drop-outs, and the transition from school to work. A second major issue is the development of students from childhood through adolescence. Developmental issues include the need for longitudinal studies, especially of elementary school children, preprimary school programs, and adolescent development. Finally, the quality of instruction, including teacher preparation and classroom processes, and public perceptions of education are discussed.

Excellence and equity in education

A foremost goal of the American educational system is the development of students into literate, critical-thinking citizens who function well in a complex, technological, democratic society. The elementary and secondary educational system should prepare students for adult roles that are both productive and personally satisfying. For some students, this preparation will lead to higher education and for others, the transition into the labor force.

The 1983 reports expressed the fear that American children's education is not sufficient to allow the country to compete favorably with other industrial nations. Appropriate indicators of the quality of education American children receive should be available and should allow for meaningful comparisons among states, as well as with other countries. In 1980, 40 states had minimum competency testing (Whalen, 1984) but these programs varied greatly from state to state. Indicators such as SAT and ACT scores, reported in the State Education Statistics Chart, have some utility but do not allow complete across-state comparisons, because the percentage of students taking each test varies from state to state. An exclusive reliance on standardized, multiple-choice test formats, however, is not desirable. Measures of critical thinking must be available. Test items are needed that assess higher-level processes rather than only the recall of basic facts. Students' ability to write must be assessed. Other abilities and skills judged to be important in the society should be assessed. For example, do we expect our students to have some knowledge of music, art, languages other than English? Is physical and nutritional education an important issue, given the recent reports of low physical fitness in American school children? If so, these must be assessed in some meaningful way.

Equity issues. The SAT and ACT also have limited utility as indicators of the status of American education because segments of the population will not take these tests and will not attend college. This fact represents a most difficult issue. Excellence and equity must be simultaneous goals of the educational system; both must be included in assessments of educational outcomes. "Quality" and "excellence", however, appear to have become codewords for lessened concern with equality and equity in education. Some proponents of excellence

in education appear to believe that the only way to achieve that goal is by focusing on those children already best-served by the American education system and making them better. Other educators claim to believe that equity for minorities is no longer an issue, except in the most minor ways, because of the changes of the 1960s and 1970s. In outlining a limited federal role in education, Bell (1982) includes protection against discrimination and violations of civil rights, but with an emphasis on persuasion rather than enforcement. This statement exemplifies the current lessened interest in equality of opportunity and outcomes for those groups in society underserved by the educational system. Excellence in education, however, should be a goal for all students. Quality without equality will mean, simply, continued discrimination.

Equity for the poor, minorities, and females is a major theme within all the issues raised in this paper. (Equal access to education for handicapped children also is an important issue, but will not be addressed directly.) A growing number of American children live in poverty. Currently, 22% of American chidren live in poverty, compared to 18.3% in 1980. Poverty levels vary greatly by region and state, ranging from 7.5% of the school-age population in Wyoming to 30.4% in Mississippi. Minorities account for 26.7% of public school enrollment, ranging dramatically from .9% in Maine to 96.4% in the District of Columbia (U.S. Department of Education, 1985). Although they may be approximately equal in number with their male counterparts, girls, along with the poor and minorities, continue to experience inequities in the educational system. The achievement of poor, minority, and female students thus is a major issue.

Many reports do not provide adequate information on race, sex, and income level of students. Reports of education statistics provide some separate data for Blacks but not always in the most informative manner. Little information about Hispanics is provided and even less about other minority groups, such as American Indians. (See La Fromboise & Plake, 1983, for discussion of research needs of American Indians). Data sometimes are reported by race and then separately by sex, rather than by sex within race. Gender differences, however, may not be uniform for whites and minorities (Reid, 1982; Scott-Jones & Nelson-Le Gall, in press). Similarly, breakdowns by economic status are given for the entire sample rather than within minority groups. Data should be reported by income level within minority groups, to avoid the usual confounding of race and economic status. In those instances where some information on income level is provided, it is usually at the aggregate rather than the individual level. For example, reports of mathematics performance from the National Assessment of Educational Progress (NAEP) (Weinberg, Gerald, & Tron, 1984) give mean performance by type of community--rural, urban disadvantaged, and urban advantaged.

The achievement of poor, minority, and female students must be carefully assessed. The effective schools movement has

directed attention to achievement in schools with large numbers of poor minority students and has highlighted the fact that poor minority children can benefit from good educational efforts. It has focused attention, however, on standardized test scores as the major criterion for effective schooling. Assessment should include comprehensive measures of learning and thinking that are appropriate for minority students. Sex differences in performance, especially in math and science (see Stage, Kreinberg, & Eccles, 1985), need to be monitored.

Integration of public and private schools must be monitored. In addition, segregation of students via ability grouping and tracking must be monitored. Ability grouping in classrooms may result in an inferior education for minority and poor students. Minority students tend to be overrepresented in lower level groups and tracks, where teachers spend less time on academic instruction and more time on discipline and classroom management (Hallinan, 1982).

A biennial or triennial report on the education of children living in poverty was suggested at the Interagency Conference on Child and Family Statistics (Zill, Peterson, & Moore, 1984). Reports on the education of racial/ethnic minorities also would be useful. Oversampling of minority groups was recommended by the Interagency Conference on Child and Family Statistics. Because national probability samples will include only small numbers of Blacks, Hispanics, Native Americans, and Asian Americans, oversampling of these groups may be necessary for meaningful conclusions about them. Supplementary samples could be obtained from geographic areas with high numbers of specific minority groups. The whole issue of cultural pluralism needs to be addressed. Not only are numbers of minorities in schools important but also respect for and acknowledgment of people of different racial and ethnic backgrounds.

Bilingual education. Bilingualism is an issue in some regions. Children may be labeled "language minority" if they or their parents use a language other than English primarily or "often". Students are designated "limited English proficient" if they score below a cut-off point on a test of English proficiency (Weinberg, Gerald, & Tron, 1984). States with the highest percentages of low-scoring children are New Mexico, New York, California, Arizona, Hawaii, and Texas. Approximately 73% of the 3.6 million children labeled limited English proficient are Hispanic (Rotberg, 1982), although the majority of U. S. Hispanic children do not attend bilingual classes (Otheguy, 1982). Because of their greater numbers, Hispanics have been the subject of research more frequently than other language minority groups, such as Asian Americans or American Indians (Steinberg, Blinde, & Chan, 1984), although the court case, Lau v. Nichols, 1974, resulting in the establishment of bilingual education, was brought on behalf of Chinese students (Sinclair, 1983).

Disagreement exists regarding the number of children who need special English language services (Cooke, Ginsberg, & Smith,

1985; NCES Indicators, 1985). Cooke et al. point out that many children scoring below the cut-off use English as their main or only language and therefore do not need special English services. Unless the test is not valid or the cut-off point is too high, however, it seems important to provide services to low-scoring children, even if they do use English. Currently available tests of language proficiency are of questionable reliability and validity, and use norms derived from nonrepresentative samples (Padilla & Lindholm, 1984; Rotberg, 1982). Most important, the tests do not measure the functional use of language (Padilla & Lindholm, 1984). Determining language proficiency for bilingual children is difficult because fluency in a language is dependent upon many factors such as the social context, the language permitted or encouraged in that context, and the topic of conversation (Duran, 1984). For example, Hispanics may use Spanish generally but may be more familiar with English as the main language of the school (Duran, 1984).

In addition to the identification of children needing special English services, another issue is the nature of the special instruction they receive. Researchers disagree on whether the focus of special programs should be immersion in the English language in special classes, with instruction in other subjects in the usual classes, or bilingual programs that teach children in their native language. Clear differences in student outcomes in the two types of programs have not been found. Although methodological problems preclude definitive conclusions, some studies suggest that bilingual programs result in lower drop-out rates (reported to be as high as 90% for Hispanics in a Texas school district), better attendance, and higher self-concepts (Otheguy, 1982; Rotberg, 1982). In studying the effects of different programs, other variables such as socioeconomic status, ethnic or national origin, and age on arrival in the U.S. should be included (Rotberg, 1982; Steinberg et al., 1984). In addition to achievement as a major outcome of bilingual programs, the preservation of the child's native language may be a desired goal for many, although the issue is controversial (see Orteguy, 1982). Spanish-English bilingual children in Head Start bilingual programs appear to decline in complex Spanish linguistic forms as they increase in complex English forms (Garcia & Gonzalez, 1984).

Identifying qualified teachers and appropriate curricula may be a problem. For example, because of the Title VII (Elementary and Secondary Education Act, 1974) ruling that 20 or more students from the same language group in a given school district must get special instruction, the Chicago school district must provide instruction in Spanish and 17 other languages. A study in New Mexico found that only 13 of 136 bilingual teachers and aides could read and write Spanish at the third grade level (Rotberg, 1982).

Segregation becomes an issue in the education of bilingual children. To avoid segregation, Title VII funding of bilingual programs allows up to 40% of the children enrolled to be native

English-speakers (Rotberg, 1982). Hispanic students may be assigned to bilingual programs on the basis of ethnicity or home language rather than on language proficiency. In a study of Title VII bilingual programs, 75% of the students were Hispanic but less than one-third of them were judged by a teacher to be of limited English proficiency (Rotberg, 1982).

Private schools. Many parents view public schools, long the backbone of American education, as less desirable than private schools. The expectation of higher achievement and of a relatively homogeneous student body may lead some parents to prefer private schools. A report comparing public and private schools, prepared for NCES by Coleman, Hoffer, & Kilgore (1981), generated much controversy regarding the segregation of private schools, the differential achievement of private and public school students, and the predicted effects of public support of private schools. Critics of the report (e.g., Braddock, 1981a, 1981b) point out that the finding of little segregation in private schools is meaningless, because of the miniscule number of minority students in private schools. The index of segregation used in the report was based on the distribution of Black and white students within the private school system, not on the proportion of Blacks in private schools. It assessed whether those Blacks within the system of private schools tend to be segregated in certain schools. The important issue, however, is Black access to private schools, not their segregation within the private school system.

The finding of higher achievement for private schools does not take into account self-selection artifacts or curriculum placement of public and private school students. The higher achievement found for private school students might be diminished if they were compared to public school students in college preparatory tracks rather than the entire public school population (Braddock, 1981a, 1981b).

Finally, the Coleman et al. claim that public support of private schools would aid poor and minority students and would not lead to further segregation is not supported (Braddock, 1981a, 1981b). The support and improvement of public schools are necessary for educational opportunity for poor and minority students. Public and private school comparisons made by Coleman et al. yield more useful information about the characteristics of effective schools--such as emphasis on homework, demanding curricula, demanding teachers, and a disciplined, orderly environment--which could be used to improve public schools (Braddock, 1981a, 1981b).

The biennial surveys of private schools should be continued and strengthened. Efforts must be made to ensure that the samples in private school surveys are representative and that reports from administrators of these schools are reliable. Because of the lax regulation of private schools, data regarding enrollment, attendance, achievement, and teacher certification may be suspect. Regulations for private schools vary by state.

In North Carolina, for example, private schools are required to report only the beginning and permanent termination of operation (North Carolina General Statutes, 1979). They are not required to hire certified teachers. Participation in state achievement testing and minimum competency testing programs is voluntary, although private schools are required to give a standardized achievement test to students at specified grade levels and a standardized minimum competency test to eleventh graders each year. They must maintain records of these tests, along with attendance and immunization records, for one year for possible inspection; the appropriate state agency may or may not inspect these data, at its own discretion. The high-achieving private schools described in the Coleman et al. study may not be the norm.

The stability of private schools--how long they stay in operation-- needs to be monitored, along with patterns of movement of students between private and public schools. Individual level data from parents and students should be obtained, particularly regarding motives for attending private schools and perceived and actual benefits of private school attendance. The motives and experiences of Blacks and other minorities in private schools should be assessed, as has been done in Slaughter's recent work (Slaughter & Schneider, 1985; Slaughter, Schneider, & Lindsey, 1985).

Some parents eschew formal schooling altogether, choosing instead to teach their children in their homes. In North Carolina, a recent court ruling required that these parents comply only with the minimal regulations for private schools; they are not required to report anything other than the beginning and the permanent closing of operation (Alvarado, 1985). In 1985, at least twenty-five "schools" with students from two or three families were established in North Carolina. Officials expect the number of home schools to increase. A parent group lobbying for home education in North Carolina claims 300 families as members (Perkins, 1985). More information is needed on the numbers, experiences, and achievement of children taught in their own homes.

Computers and schools. Changes in technology in the society affect schools. An increasingly computerized society requires that children become computer functional, if not computer literate. The National Commission on Excellence in Education (1983) recommended that computing be a basic high school subject. The extensive use of computers may result in changes in definitions of intelligence and education: education may move from basic facts to information management skills; broad problem-solving skills; planning, monitoring, learning to learn, and other metacognitive skills; and communication and inquiry skills (Pea, 1985). Research on the computers' impact is especially needed now, before computers become so widespread that finding children unfamiliar with computers will be difficult (Lepper, 1985).

NCES has assessed the availability of microcomputers and of terminals to mainframes in elementary, junior high, and senior high schools (Grant & Snyder, 1983). From 1982 to 1983, the percentage of elementary schools having microcomputers more than tripled, the percentage of junior high schools more than doubled, and the percentage of high schools tripled (Whalen, 1984). The amount of time students use computers was assessed in a study conducted by Johns Hopkins' Center for the Social Organization of Schools. In elementary schools, the median number of minutes of student use per week was low: 12 minutes for learning and recreational games, 13 minutes for drills and remedial work, and 19 minutes for programming and computer literacy; almost no students spent more than 60 minutes per week using the computer. The biggest increase from elementary to secondary schools was in programming and computer literacy (median, 55 minutes) and in word processing and data processing (30 minutes). These amounts are not adequate. At least 500 hours of computer time may be necessary for the development of expert programming skills (Linn, 1985).

Although these surveys provide useful beginning information about computers in schools, other issues must be addressed. Computer technology, in its present transitional stage, appears to amplify existing social roles and social problems (Caporael & Thorngate, 1984). The use of computers may increase the achievement gaps between middle-class children, who are likely to have and use computers in their homes as well as in school, and poor children, who may have only limited access to an inadequate number of computers at school. According to Linn (1985), access to computers at home and at school is related to middle-school students' programming skills, except in those classes labeled "exemplary". In addition, boys appear to master and enjoy computers more than do girls. Boys' greater affinity for computers may result from the preponderance of educational programs with male sex-typed themes such as sports, war, and violence (Lepper, 1985) and from the association of computers with mathematics in junior and senior high schools (Sheingold, Kane, & Entreweit, 1983). When girls take computer courses, they may perform as well as boys. In Linn's (1985) research, girls were 37% of middle school programming classes but 60% of students identified as the most talented programmers. These trends that could maintain or exacerbate existing inequities need to be monitored. Computer-assisted instruction may be useful for poor minority students in some situations, however. Sheingold et al. (1983) describe teen-aged Asian immigrants, attending school for the first time, who had successful experiences learning mathematics via computers, because little English was required.

Attention must be given to the actual use of computers and what students gain from them. Derek Bok of Harvard University has suggested that computers, because they limit the student to a specified set of responses, may restrict students' imagination (Culliton, 1985). According to Bok, some areas of study, such as historical interpretation or literary criticism, cannot be reduced to the formal rules and procedures necessary for

computerized instruction. Ideally, students should not be passive, using the computer only for routine drills; such students may guess randomly just to move the program along.

Although computer drills may not be much of an advancement over workbook drills, other uses of the computer may facilitate learning in unique ways. Carefully designed tutorial programs may allow for the redirection of students' learning according to the nature of their errors. Word processors may encourage the development of skills with written language, because of the ease of editing and revising (Wolf, 1985); computer simulations of principles and experiments in the physical and biological sciences may help to make abstract concepts concrete and understandable (Chaille & Littman, 1985); computer graphics may enhance the development of spatial skills (Klein, 1985). Learning may be facilitated most when children acquire the control that results from learning to program the computer (Sheingold, et al., 1983). Children who learn to program may acquire valuable conceptual and problem-solving skills that will be useful in other contexts (Dickson, 1985; Lepper, 1985; Linn, 1985; Olson, 1985).

Research is needed to determine whether computer-assisted instruction actually enhances learning and achievement. Research should address whether computer-assisted instruction in a "fun-and-games" format is more or less effective than typical "drill-and-practice" computerized presentations (Lepper, 1985). Research should address whether programming skills actually transfer to other problem-solving situations. Attention should be given to the possibility that the computer may maintain achievement gaps between low achievers who use them for drill and high achievers who learn to program.

Computers may change the social dynamics of the classroom. Hawkins, Sheingold, Gearhart, & Berger (1982) found that elementary school teachers focus on the social rather than the cognitive outcomes of using computers in their classrooms. Contrary to what might be expected, more social interaction, collaboration, and helping are observed among students working on computers than among those working on other tasks. Dickson (1985) suggests that the potential for increased social interaction in classrooms with computers, expecially those with "thought-provoking" software, may be more significant than the potential for increased cognitive skills. Social interaction related to cognitive tasks contributes to cognitive development (Chaille & Littman, 1985).

The appropriateness of software and its relationship to the curriculum should be monitored. Software may be independent of the curriculum, it may be chosen to reflect the existing curriculum, or it may result in the design of a revised curriculum incorporating the computer. Bok suggests that the process of software development, because it requires detailed attention to the presentation of material in a manner that facilitates student learning and interest, may lead to a more

careful appraisal of the entire instructional process (Culliton, 1985). The use of computers may also lead to a more individualized curriculum (Lepper, 1985; Sheingold et al., 1983).

Teacher expertise in using computers needs to be monitored. Teachers may need time to develop their skills in the school rather than more formal courses (Sheingold et al., 1985). Some teachers become "computer buffs" on their own initiative but the active support of the principal in acquiring time and resources may be critical (Sheingold et al., 1985). As computers become integrated into curricula, aides may be able to manage students' computer activities and teachers may focus on higher-level conceptual development and social development (Sheingold et al., 1985). The emergence of student computer experts in some schools has led to new student-teacher relations, with students sometimes contributing to the development of teachers' skills (Sheingold et al., 1985). Teachers interacting with student-experts may experience role conflict (Caporael & Thorngate, 1984) but this may be a temporary phenomenon that will disappear as computers become more widely used and the usual structure of expertise resumes (Sheingold, Hawkins, & Char, 1984).

Drop-out rates. The rate at which children leave school without a high school diploma needs to be monitored. The drop-out rate, or its inverse, the graduation rate, is considered an important indicator of the status of American education. A major performance outcome in across-state comparisons, the graduation rate varies from a reported high of 94.8% in North Dakota to a low of 57.2% in Louisiana (U.S. Department of Education, 1985).

There are discrepancies between the drop-out rates estimated by NCES (27%) and by the Census Bureau (16%) (Cooke et al., 1985). The NCES measure is the difference between the number of public high school graduates in a given year and the number of public school 9th-graders from four years before; the Census Bureau, in household surveys, asks individuals how many years of school they have completed. Cooke et al. point out a number of reasons for the possibly inflated NCES measure and the possibly too-low Census figure. The basic problem, however, is one of definition. The Census measure is actually an assessment of the proportion of the population reporting that they have completed high school, including those who pass high school equivalency exams. These self-report data are not checked against any official data. The NCES statistic, if it excluded current graduates who were not ninth-graders four years earlier, would be a clean measure of the proportion of ninth-graders who graduate on schedule. Follow-up assessments could determine the rate at which the ninth-graders graduate five or six years later. This assessment still would miss students who left school before ninth grade.

The High School and Beyond study provides useful information about drop-outs from the 1980 sophomore class (Whalen, 1984). Data are reported by sex, race/ethnicity, socioeconomic status, grade and curriculum, community type and geographic region, and

public or private school. Most important, the reasons students give for dropping out are reported by sex and race. Reasons cited most frequently were dislike of school for white males, poor grades for minority males, marriage and dislike of school for white females, and poor grades and pregnancy for minority females. This kind of information is critical for the prevention of students' dropping out. In addition, distinctions should be made between truancy, chronic absenteeism, and drop-outs (Zill et al., 1984). Some students who have not formally left school may be absent so frequently that they, for all practical purposes, are drop-outs (Steinberg et al., 1984). More information on drop-outs in minority groups is needed. Drop-out rates for Hispanics (40%) and American Indians (38-60%) are extremely high, much greater than those of Blacks and whites (Steinberg et al., 1984).

Transition to work. Much attention is given to the preparation of students for higher education, as evidenced by the use of the SAT and ACT in comparisons of educational outcomes across states (U.S. Department of Education, 1985). Many students, however, want and need to enter the job market immediately after high school. They need to be prepared for an occupation and for forms of additional training other than college. The transition directly from high school to work occurs more often for poor and minority students than for middle-class and white students.

A most serious dilemma is the relationship of the education children receive to the nature of employment available to them in the society. Current evaluations of American education, such as that of the National Commission on Excellence in Education (1983), suggest that the faltering American economy, both its domestic and international status, is the result of our poor educational system, or at least can be revived by improvements in the educational system. Giroux (1984) points out that the converse is true--the economy has a great impact on the schools. Duckworth (1984) cites Bureau of Labor Statistics projections of more fast-food than high-technology jobs in 1990. The increasing polarization of available jobs--a relatively small number of high technology jobs and a high number of low-level service jobs requiring few intellectual skills--raises difficult questions about the economy, the educational system, and the complex relationship between the two (Giroux, 1984).

Although some may argue that a successful American economy depends upon well-educated, highly skilled adults, such may not be the case. If projections regarding available jobs are accurate, the economy may need large numbers of adults willing to work in what are presently low-paying, unsatisfying service jobs. Are we trying to teach children skills they will not be able to use as adults? If the majority of children acquire high-level technical and conceptual skills, how will the society decide who gets the more lucrative, prestigious high-tech jobs and who gets the service jobs? Does the achievement of poor minorities remain low because of perceptions of a "job ceiling" (Ogbu, 1978)?

These questions regarding the utility and promise of the educational system for all of America's youth must be answered. A continuation and strengthening of the assessment of students' activities after high school is necessary. The nature of employment, as well as the rate of employment, should be assessed.

Childhood development

Longitudingal studies. Because schools provide a major context for children's development, much more information is needed on children's experiences in school, in addition to the outcomes of schooling. A national longitudinal survey of children in the elementary grades, similar to the longitudinal surveys focusing on secondary schools, has been proposed (Zill et al., 1984). Such a survey should include children and parents as respondents in addition to gathering information about classroom processes. Students' attitudes toward school and achievement aspirations and expectations should be assessed. The relative inattention to elementary school children in national longitudinal studies is not in keeping with the importance of development during this time of children's lives.

Preprimary schooling. Because of dramatic changes in family structures, one cannot assume that most school children live in homes with a father who is the sole breadwinner and a mother who is a full-time homemaker. More than half of women with children work outside the home and a high proportion of children live with a single parent, usually the mother, for at least a portion of their lives. Minority children are more likely than white children to live in single-parent homes. These changing family structures have implications for after-school programs, and for day care services as part of public schools. The proportion of 3- and 4-year-olds enrolled in some form of schooling almost quadrupled between 1964 and 1983, rising from 9.5% to 37.5% (NCES Indicators, 1985). The educational experiences of 3- and 4-year-old children will continue to be an important issue. The survey of prekindergarten enrollment, conducted through the Census' Current Population Survey, should be continued. A related issue is the before- and after-school care of children of working parents, which often is handled by the same providers who take care of 3- and 4-year-olds. Lack of appropriate care has resulted in the problem of "latch-key" children.

Although day care facilities that have been studied appear to cause neither increases nor decreases in educational achievement for children generally (Belsky & Steinberg, 1978), longitudinal research shows positive educational and economic outcomes for children, mostly poor and minority, who participate in specially designed prekindergarten programs (Lazar & Darlington, 1982). The quality of present day care facilities is an issue of concern; some facilities are exemplary but others are merely custodial and some have allowed the abuse of children enrolled. The cost as well as the availability of quality care is an issue; many parents, especially single mothers, simply cannot

afford good day care.

Some European and Asian countries presently provide educational programs supported by public funds for 3- and 4-year-olds. In the United States, some states have public programs, which typically are half-day programs and are not available to all 3- and 4-year-old children; other states are planning programs for 1985-86 and some are studying the need for and feasibility of such programs. North Carolina, for example, recently completed a study of the issue (Kahdy, 1985). They concluded that the public school does have a responsibility to provide programs for prekindergarten children because of the developmental needs of children of that age group and because of the needs of working parents. The most vigorous objection to public prekindergarten programs came from private day-care providers, with some concern also expressed by those who feared that structured programs and pressure for academic success would overburden children.

In analyzing and reporting prekindergarten enrollment data, emphasis should be given to differential enrollment rates of minority groups. In 1981, approximately 36% of both Black and white 3- and 4-year-olds were enrolled in school programs, compared to approximately 25% of Hispanic children (Grant and Snyder, 1983). Trends in private and public enrollment should be monitored for white and minority groups. In 1982, 61% of 3- and 4-year-olds enrolled in school were in private programs. More than 70% of white but only 33% of Black children enrolled in school were in private programs (Kahdy, 1985). The high cost of good private day care may mean that poor children are denied access to quality educational experiences. These programs may be the beginning of segregated education for Black and white children, and for poor and affluent children. The provision of public programs for only poor children, however, will further institutionalize the segregation and unequal experiences of children of this age group. The adequacy of federal funds for poor children should be monitored. Federal Title XX and Head Start provide programs for only 20% of eligible children (Kahdy, 1985).

The reporting of data on 3- and 4-year-old enrollment should be in the most useful form. For example, 3- and 4-year-old enrollment combined with 5-year-old enrollment is misleading because almost 100% of 5-year-olds are in some school program. Another problem is that no distinction is made between half-day and full-day programs in the reports.

The cost of programs and the certification of teachers for this age group should be assessed. Day care workers generally earn less than public school teachers, have less formal education, and are not certified. On the other hand, public prekindergarten programs may be cost-effective if they employ unused or underused facilities and resources, and if existing services in the public schools, such as those related to counseling, testing, and health, can accommodate prekindergarten

children. The instructional quality of programs should be assessed, especially the degree of structure of the curriculum, the nature of evaluation of students, and the attention given to social, emotional, and physical as well as cognitive development. The extent of before- and after-school programs in public and private institutions should be assessed, including the quality of children's experiences in those settings. The attitudes of the public, including private day-care providers, toward public prekindergarten programs should be assessed.

Adolescent development. Longitudinal studies of high school students should be continued. As adolescents become increasingly independent and begin to make decisions for themselves that may affect their school performance and their adult life chances, attention must be given to the special problems that arise. One is the relation of athletics to academic performance. Much attention has been given to young men, in particular, who are superb athletes in high school and later in college but whose academic skills are woefully lacking. School districts try to handle this situation by maintaining minimum academic standards for participation in athletic activities and other extracurricular activities. The athletics/academics problem appears to affect minority students more than whites. Career guidance in general is an important issue for Black males (Perry & Locke, 1985).

An additional problem of teenage students is alcohol and drug abuse. For example, a northern New Jersey school district recently established a policy requiring students to take a physical examination yearly, which includes tests for illegal drugs. Such extreme measures are controversial but reflect the concern with schools as places for drug use and drug trafficking. A related issue is violence in schools. Schools must have an atmosphere of safety rather than fear in order for teaching and learning to proceed smoothly. Cooke et al. (1985) point out problems in accurately assessing the incidence of student victimization.

The high incidence of pregnancy among adolescents is an issue for schools. Some schools provide sex education programs aimed at pregnancy prevention but, again, these are controversial. Many parents disapprove of the school's providing information about an aspect of children's lives that involves personal values. A 1982 survey found that 80% of approximately 200 urban school districts provided sex education but only 16% of senior high and 11% of junior high schools offered separate courses (Sonenstein & Pittman, 1984). Fewer than 10% of students attend formal programs of more than 40 hours (Kirby, 1984). Teen pregnancy has implications for the drop-out rate and may require school districts to provide special programs or schools for the pregnant teen. Among white females who dropped out of the sophomore class of 1980, the most frequently cited reason for leaving school (36.4%) was marriage or plans for marriage, which could have involved a pregnancy. Pregnancy was cited as a reason by 20.5% of white girls. For minority girls, the most frequently

cited reason was poor grades (30%) but pregnancy was a close second (29.2%). Marriage or plans for marriage was cited by 19.2%.

Quality of instruction

Teacher preparation. The competence of teachers must be monitored in a more precise manner than merely assessing years of education or experience, although certainly those pieces of data should be collected. Much concern has been expressed regarding teachers' academic ability and the quality of courses they choose in college. In 1982, high school seniors planning to become teachers earned a low mean SAT score, ranking 26 out of 29 planned majors. College graduates who enter and plan to remain in the teaching profession are among the lowest scorers on the SAT (NCES Indicators, 1985). The Southern Regional Education Board's examination of transcripts of 1982-83 graduates of seventeen Southern universities revealed teachers take 65% more education methods courses than needed for certification, only 22% of their math courses are college-level, 75% take no foreign language and no philosophy courses, 66% take no chemistry and no physics, and 83% take no upper-level English courses (Galambos, 1985). Proposals to change the structure of teacher education have been made, such as having a more comprehensive undergraduate education and professional teacher training at the master's and doctoral levels. The specific structure of teachers' education needs to be monitored.

Teacher pay must be monitored. Teacher salaries, adjusted for inflation, have declined from the 1970's until the present (Weinberg, Gerald, & Tron, 1984). Male teachers' income is considerably less than the mean for all salaried professionals, although the comparable difference for female teachers is not nearly as great. In the two decades between 1961 and 1981, the adjusted mean salary for all full-time male workers rose 19% and for females rose 17%. In contrast, male teachers' adjusted salary rose only 2% and female teachers' slightly more than 1%. The prospect of low pay may discourage many talented college students from pursuing teaching as a career. Some efforts to remedy this situation have focused on strategies such as merit pay rather than across-the-board increases.

Not a new remedy, merit pay for teachers was tried in the 1920s and again in the 1960s; the programs instituted were short-lived (Johnson, 1984). In the present context of overall low teacher salaries, some educators view merit pay as impractical, divisive, and potentially unfair (Barranco, 1984). Although proponents of merit pay argue that all occupations reward extraordinary performance, merit pay actually is not used extensively in industry and is most effective in occupations, such as sales, that rely on individual effort and have clearly identified standards for success (Johnson, 1984). In contrast, effective teaching is poorly defined and depends on factors the teacher cannot control, such as the skills of administrators and of students' previous teachers (Johnson, 1984). Duckworth (1984)

points out that the relation of beginning to maximum salaries for teachers is not much different from that of other salaried professionals, such as engineers; the striking difference is the overall low level of teachers' pay. A Boston public school administrator (Rosen, 1984), however, concluded that merely raising teacher salaries will not result in improved education, because Boston teachers have high salaries, relative to teachers nationwide, and their students very low achievement scores. Perhaps salary increases must be combined with other improvements in working conditions to affect teacher performance.

The supply of qualified teachers needs to be monitored and the racial/ethnic composition of the teacher pool needs to be monitored. In addition, demand for teachers needs to be accurately monitored so that efforts can be made to match supply with demand. The number of positions vacant can be underestimated if a program is terminated because of no teachers; no vacant or unfilled positions would appear because the entire program was terminated.

Classroom processes. The amount of time during the school day actually spent in instruction--time on task--has been conceptualized as a major variable of importance in students' achievement but no national data on this hard-to-measure variable are available (Cooke et al., 1985). Another important time variable, the proportion of students who attend school daily may not be accurate because states may compute attendance in different ways, and may even count students who have excused absences as present (Cooke et al., 1985). A third time variable, course enrollment, also may be inaccurate, especially if reported by students themselves (Cooke et al., 1985). Other time variables that need to be assessed are length of school day and school year, as some districts have experimented with this method of increasing instructional time.

Some educators (e.g., Barranco, 1984) point out that a more important issue is the quality of instructional time. The quality of instruction is even more difficult to measure than the time variables. Sirotnik (1983) found that teaching practices are remarkably similar across many elementary and secondary classrooms and are not substantially different from those employed throughout this century. These practices consist of teachers lecturing or students working on written assignments for the majority of class time. Questions typically were closed and factual, with little feedback or guidance. According to Sirotnik, the teaching practices supported dependence on authority, apathy, and passivity.

The nature of the interactions between teachers and students need to be monitored. Data suggest that teachers respond differently to minority and white children, to poor and middle-class children, to male and female children (see Lockheed, 1985). Differential interactions may affect the performance of children. The means by which teachers maintain order and discipline in classrooms should be monitored. A number of organizations, such

as the American Medical Association, have issued formal statements opposing the use of corporal punishment in schools; four states have outlawed corporal punishment in schools. Suspending and expelling students from schools as disciplinary measures should also be monitored, especially among minority males, who are disproportionately subjected to these forms of punishment.

Public perceptions of education

Assessments of the views of parents and other citizens regarding education need to be continued and strengthened. Recently, Phi Delta Kappa established a National Commission on Public Confidence in Education. In 1970 and each year since then, a Gallup survey of public perceptions of schools, sponsored by Phi Delta Kappa, has been conducted. Although the 1984 results (Gallup, 1984; NCES Indicators, 1985) are hailed as demonstrating a sharp upturn in public opinion regarding schools, fewer than half of the 1984 respondents believed that the schools deserved a grade of A or B. The mean grade given schools in 1984 was slightly higher in 1984, but at 2.36 (with 2 representing C), compared to 2.12 in 1983, the claim of a sharp increase is hardly justified. Asking individuals what grade they would give their local schools may not be the most meaningful way to assess public opinion. The meanings attached to grades probably vary widely among individuals. Some may think that "C" is a good grade; others may believe it is a terrible grade.

The views of teachers and school administrators need to be assessed separately from those of parents. The 1984 survey of teachers conducted by Louis Harris Associates (NCES Indicators, 1985) found that teachers viewed student lack of interest, inadequate finances, and overcrowded classrooms as more serious problems than student discipline and drugs, the problems most frequently cited by parents in the 1984 Gallup Poll. A substantial number of teachers, however, viewed discipline (40%) and drugs (33%) as problems. The views of those with special needs or concerns vis-a-vis the school might also be assessed separately. Parents of handicapped children, gifted children, or learning disabled children may have different views of schools, as may minority and poor parents.

Summary.

National statistics should reflect the educational goals of the society, which are many and varied. The clear identification of major educational goals must be followed by careful operationalization of variables, uniform, commonly understood definitions, appropriate sampling techniques, and accurate reporting with checks for accuracy. Variables studied should be those that are most meaningful rather than merely those that are most easily quantified. More information is needed on the processes of schooling--what children actually experience--as well as on the outcomes of schooling. Research efforts of individuals and agencies should be coordinated as much as is

possible. Specific needs include:

1. Measures of educational achievement that reflect the goals of the educational system.

2. Careful assessment and reporting of the educational experiences and achievement of underserved groups, including minority, poor, female, and handicapped students. Periodic special reports and oversampling of these groups may be required.

3. Assessment of bilingual programs, including appropriateness of criteria for inclusion; impact on achievement, retention of native language, and segregation; and appropriateness of teachers and curricula.

4. Assessment of private schools, including minority access, achievement, quality of curricula, teacher certification, and public support.

5. Assessment of computer use, including impact on learning and thinking, on curriculum and classroom processes, and on existing achievement gaps between various demographic groups.

6. Accurate assessment of the drop-out problem, including rates for various demographic groups, students' reasons for leaving school, and students' activities after leaving school.

7. Assessment of students' work experiences after high school, with attention to the nature and requirements of projected jobs.

8. Longitudinal studies of both elementary and secondary students, including achievement but also focusing on children as respondents regarding their own experiences and perceptions, and including problems in adolescence, such as pregnancy and drug abuse.

9. Careful assessment of public and private programs for 3- and 4-year-olds, including cost, curricula, teacher qualifications, length of school day, achievement, and enrollment of minority and poor children.

10. Assessment of teacher preparation, teacher pay, and teacher demand in various subject areas.

11. Assessment of classroom processes, including instructional time variables, teacher-student and student-student interaction, and measures of quality of instruction.

12. Meaningful assessments of perceptions of parents, teachers, and other citizens of the educational system, including the perceptions of parents of children with special needs.

Many of the problems of schools go beyond individual achievement, reflecting the developmental needs of children and

the economic, political, and cultural conditions of American society. It is not sufficient to ignore issues larger than cognitive skills, using the defense that schools are not responsible. Whether the influence is intentional or not, schools affect children's overall development. And, intentional or not, the school is an arena in which the race/ethnicity, class, and gender biases extant in the larger society are played out. A critical issue for American education is whether schools can help all children develop into adults who have productive, personally satisfying roles in American society or whether schools will sort poor, minority, and female children into the roles traditionally allowed for them.

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